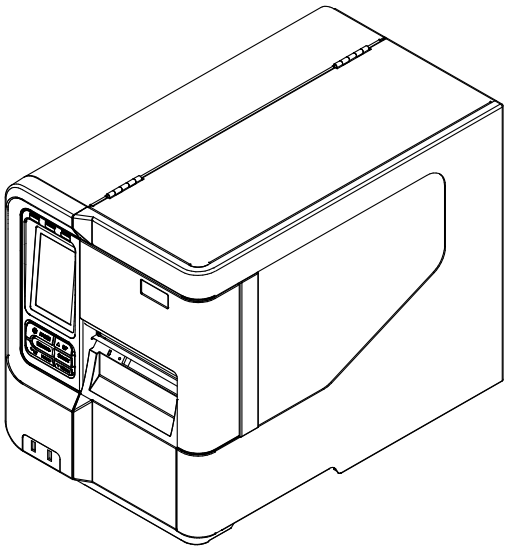
MX240/ MX340/ MX640 Series

THERMAL TRANSFER / DIRECT THERMAL BAR CODE PRINTER

USER'S MANUAL



Copyright Information

©2014 TSC Auto ID Technology Co., Ltd,

The copyright in this manual, the software and firmware in the printer described therein are owned by TSC Auto ID Technology Co., Ltd, All rights reserved.

CG Triumvirate is a trademark of Agfa Corporation. CG Triumvirate Bold Condensed font is under license from the Monotype Corporation. Windows is a registered trademark of Microsoft Corporation.

All other trademarks are the property of their respective owners.

Information in this document is subject to change without notice and does not represent a commitment on the part of TSC Auto ID Technology Co. No part of this manual may be reproduced or transmitted in any form or by any means, for any purpose other than the purchaser's personal use, without the expressed written permission of TSC Auto ID Technology Co.

Agency Compliance and Approvals

CE	**EN 55022, Class B** **EN 55024** **EN 60950-1**
FC	**FCC part 15B, Class B**
	AS/NZS CISPR 22, Class B
c UL us LISTED I.T.E. E178707	**UL 60950-1**
TÜV SÜD Production monitored Safety tested	**EN 60950-1**
CCC S&E	**GB 4943.1** **GB 9254** **GB 17625.1**

Wichtige Sicherheits-Hinweise

1. Bitte lesen Sie diese Hinweis sorgfältig durch.
2. Heben Sie diese Anleitung fűr den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromentz zu trennen. Verwenden Sie keine Flüssig-oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschluß-Steckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schűtzen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Beachten Sie beim Anschluß ans Stromnetz die Anschlußwerte.
8. Dieses Gerät kann bis zu einer Außentemperatur von maximal 40℃ betrieben werden.

Battery safety warning:

DO NOT throw the battery in fire.

DO NOT short circuit the contacts.

DO NOT disassemble the battery.

DO NOT throw the battery in municipal waste.

The symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

CAUTION

Risk of explosion if battery is replaced by an incorrect type.

Dispose of used batteries according to the instructions.

"ORSICHT"
Explosionsgetahr bei unsachgemen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem nlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

FCC STATEMENT :

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/ TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CAUTION :

HAZARDOUS MOVING PARTS, KEEP FINGER AND OTHER BODY PARTS AWAY.

Contents

1. Introduction 1

1.1 Product Introduction 1

1.2 Product Features 2

1.2.1 Printer Standard Features 2

1.2.2 Printer Optional Features 4

1.3 General Specifications 5

1.4 Print Specifications 5

1.5 Ribbon Specifications 5

1.6 Media Specifications 6

2. Operations Overview 7

2.1 Unpacking and Inspection 7

2.2 Printer Overview 8

2.2.1 Front View 8

2.2.2 Interior view 9

2.2.3 Rear View 10

2.3 Operator Control 12

2.3.1 LED Indication and Keys 12

3. Setup 14

3.1 Setting up the printer 14

3.2 Loading the Ribbon 15

3.3 Loading the Media 17

3.3.1 Loading the Media 17

3.3.2 Loading the Fan-fold/External Media 20

4. Moveable Print Head Pressure Adjustment Knob 21

4.1 Mechanism Fine Adjustment to Avoid Ribbon Wrinkles 21

5. Diagnostic Tool 23

5.1 Start the Diagnostic Tool 23

5.2 Printer Function 24

5.3 Setting Ethernet by Diagnostic Tool 25

5.3.1 Using USB interface to setup Ethernet interface 25
5.3.2 Using RS-232 interface to setup Ethernet interface 25
5.3.3 Using Ethernet interface to setup Ethernet interface 27
6. LCD Menu Function 29
6.1 Enter the Menu Menu 29
6.2 Main Menu Overview 30
6.3 TSPL 32
6.4 ZPL2 34
6.5 Sensor 37
6.6 Interface 38
6.6.1 Serial Comm. 38
6.6.2 Ethernet 39
6.6.3 Bluetooth 40
6.6.4 Wi-Fi 40
6.7 File Manager 41
6.8 Diagnostics 42
6.8.1 Print Config. 42
6.8.2 Dump Mode 44
6.8.3 Rotate Cutter 45
6.9 Advance Set 46
6.10 Service 47
7. Troubleshooting 48
8. Maintenance 51
Revise History 52

1. Introduction

1.1 Product Introduction

Thank you very much for purchasing TSC bar code printer.

This printer is designed with die-casting aluminum chassis and print mechanism, metal cover with large clear media view window, which ensuring to work for the extreme and heavy duty industrial environment and applications.

With back-lit graphic LCD display, printer status can be managed easier and operated more user friendly. The moveable sensor design can accept wide range of label media. All of the most frequently used bar code formats are included. Fonts and bar codes can be printed in any one of the four directions.

This document provides an easy reference for operating the MX240 series.

To print label formats, please refer to the instructions provided with your labeling software; if you need to write the custom programs, please refer to the TSPL/TSPL2 programming manual that can be found on the accessories CD-ROM or on TSC website at http://www.tscprinters.com.

- Applications
  - High volume printing
  - Work in process
  - Compliance labeling
  - Inventory management
  - Shipping/ receiving
  - Asset management
  - Electronics & Jewelry labeling

1.2 Product Features

1.2.1 Printer Standard Features

The printer offers the following standard features.

Product standard feature	MX240	MX340	MX640
Thermal transfer/ or direct thermal	○	○	○
Die-cast based print mechanism and frame / Aluminum cover with large clear media view window	○	○	○
16 bits Color, 480 x 272 pixel, with back light, Resistive Touch Screen	○	○	○
1 power switch, 6 operation buttons (Menu, Pause, Feed, Up, Down, Select)	○	○	○
Control panel security (TCF)	○	○	○
LED indicators	○	○	○
32-bit RISC CPU	○	○	○
Gap transmissive sensor (Position adjustable)	○	○	○
Black mark reflective sensor (Position adjustable)	○	○	○
Ribbon end sensor (transmissive)	○	○	○
Ribbon encoder sensor	○	○	○
Head open sensor	○	○	○
128MB Flash memory	○	○	○
256 MB SDRAM memory	○	○	○
SD Flash memory card slot for Flash memory expansion, up to 32 GB	○	○	○
RS-232 interface (Max. 115,200 bps)	○	○	○
USB 2.0 interface (High speed mode)	○	○	○
Parallel interface (SPP mode)	○	○	○
Internal Ethernet print server (10/100 Mbps) interface	○	○	○
USB host (Front side) * 2, for scanner or PC keyboard	○	○	○
Real time clock	○	○	○
Standard industry emulations right out of the box including Eltron® and Zebra® language support	○	○	○
Internal 8 alpha-numeric bitmap fonts	○	○	○
Fonts and bar codes can be printed in any one of the four directions (0, 90,180, 270 degree)	○	○	○
Internal Monotype Imaging® true type font engine with one CG Triumvirate Bold Condensed scalable font	○	○	○
Downloadable fonts from PC to printer memory	○	○	○
Print head pressure force & pressure location adjustable	○	○	○
Ribbon supply spindle tension adjustable	○	○	○
Automatic media/ribbon sensor selecting	○	○	○
Sensor auto calibration from LCD menu	○	○	○
Heater element damage detection/warning	○	○	○
Clean print head warning	○	○	○
MTBF 26,240 hours/ duty cycle 90%	○	○	○

<table>
<tr>
<td>Bar code, graphics/image printing

<table>
<tr><th colspan="2">Supported bar code</th><th>Supported image</th></tr>
<tr><td>1D bar code</td><td>2D bar code</td><td rowspan="2">BITMAP, BMP, PCX (Max. 256 colors graphics)</td></tr>
<tr><td>Code128 subsets A.B.C, Code128UCC, EAN128, Interleave 2 of 5, Code 39, Code 93, EAN-13, EAN-8, Codabar, POSTNET, UPC-A, UPC-E, EAN and UPC 2(5) digits, MSI, PLESSEY, China Post, ITF14, EAN14, Code 11, TELPEN, PLANET, Code 49, Deutsche Post Identcode, Deutsche Post Leitcode, LOGMARS</td><td>CODABLOCK F mode, DataMatrix, Maxicode, PDF-417, Aztec, MicroPDF417, QR code, RSS Barcode (GS1 Databar)</td></tr>
</table>
</td>
<td>○</td><td>○</td><td>○</td>
</tr>
<tr>
<td>Supported code page:

· Codepage 437 (English - US)
· Codepage 737 (Greek)
· Codepage 850 (Latin-1)
· Codepage 852 (Latin-2)
· Codepage 855 (Cyrillic)
· Codepage 857 (Turkish)
· Codepage 860 (Portuguese)
· Codepage 861 (Icelandic)
· Codepage 862 (Hebrew)
· Codepage 863 (French Canadian)
· Codepage 864 (Arabic)
· Codepage 865 (Nordic)
· Codepage 866 (Russian)
· Codepage 869 (Greek 2)
· Codepage 950 (Traditional Chinese)
· Codepage 936 (Simplified Chinese)
· Codepage 932 (Japanese)
· Codepage 949 (Korean)
· Codepage 1250 (Latin-2)
· Codepage 1251 (Cyrillic)
· Codepage 1252 (Latin-1)
· Codepage 1253 (Greek)
· Codepage 1254 (Turkish)
· Codepage 1255 (Hebrew)
· Codepage 1256 (Arabic)
· Codepage 1257 (Baltic)
· Codepage 1258 (Vietnam)
· ISO-8859-1: Latin-1 (Western European)
· ISO-8859-2: Latin-2 (Central European)
· ISO-8859-3: Latin-3 (South European)
· ISO-8859-4: Latin-4 (North European)
· ISO-8859-5: Cyrillic
· ISO-8859-6: Arabic
· ISO-8859-7: Greek
· ISO-8859-8: Hebrew
</td>
<td>○</td><td>○</td><td>○</td>
</tr>
</table>

· ISO-8859-9: Turkish · ISO-8859-10: Nordic · ISO-8859-15: Latin-9 · UTF-8			

1.2.2 Printer Optional Features

The printer offers the following optional features.

Product option feature	User option	Dealer option	Factory option
Internal rewinding kit (include internal rewind & label redirect front panel)			○
USB host *2 (Rear side) , for scanner or PC keyboard			○
Peel-off kit (include internal rewind & peel off module)		○	
Regular cutter (full cut guillotine cutter)		○	
Heavy duty cutter (full cut rotary cutter)		○	
Applicator I/O interface		○	
KP-200 Plus keyboard display unit	○		
KU-007 Plus programmable smart keyboard	○		
Bluetooth module (serial interface)	○		
802.11 b/g/n wireless module (serial interface)	○		

1.3 General Specifications

General Specifications	
Physical dimensions	300 mm (W) x 393 mm (H)x 510 mm (D) 11.81“ (W) x 15.47“ (H) x 20.08“ (D)
Weight	18 kg (39.68 lbs)
Power	Internal universal switching power supply • Input: AC 100-240V, 3.0A, 50-60Hz • Output: DC 24V, 8.33A, 200W
Environmental condition	Operation: 5 ~ 40˚C (41 ~ 104˚F), 25~85% non-condensing Storage: -40 ~ 60 ˚C (-40 ~ 140˚F), 10~90% non-condensing

1.4 Print Specifications

Print Specifications	MX240	MX340	MX640
Print head resolution (dots per inch/mm)	203 dots/inch (8 dots/mm)	300 dots/inch (12 dots/mm)	600 dots/inch (24 dots/mm)
Printing method	Thermal transfer/ or direct thermal		
Dot size (width x length)	0.125 x 0.125 mm (1 mm = 8 dots)	0.084 x 0.084 mm (1 mm = 12 dots)	0.042 x 0.042 mm (1 mm = 24 dots)
Print speed (inches per second)	2,3,4,5…14 ips selectable	2,3,4,5…12 ips selectable	1.5,2,3…. 6 ips selectable
	Up to 14 IPS	Up to 12 IPS	Up to 6 IPS
	Max. 4 ips for peeler mode		
Max. print width	4.09” (104 mm)		
Max. print length	1000” (25400 mm)	450” (11430 mm)	100” (2540 mm)
Printout bias	Vertical: 0.3 ~ 1 mm max. Horizontal: 1 mm max.		
Printout length	0 ~ -2 %		

1.5 Ribbon Specifications

Ribbon Specifications	
Ribbon outside diameter	Max. 90 OD
Ribbon length	600 meter
Ribbon core inside diameter	1“ (25.4 mm)
Ribbon width	40 mm ~ 115 mm
Ribbon wound type	Ink coated outside wound, ink coated inside wound
Ribbon end type	Transparency

1.6 Media Specifications

Media Specifications	MX240	MX340	MX640
Media roll capacity	Max. 8” (203.2) OD		
Media core diameter	3” (76.2 mm) ID core		
Media type	Continuous, die-cut, black mark, external fan-fold, notch		
Media wound type	Outside wound		
Media width	20 mm ~ 114 mm (0.78“ ~ 4.49“)		
Media thickness	0.076 mm ~ 0.305 mm (2.99 ~ 12.01 mil)		
Label length	3 ~ 25,400 mm (0.1“ ~ 1000“)	3 ~ 11,430 mm (0.1“ ~ 450“)	3 ~ 2,540 mm (0.1“ ~ 100“)
Label length (peeler mode)	25 mm ~ 152 mm (1” ~ 6”)		
Label length (cutter mode)	25.4~2,286 mm (1” ~ 90”) 25.4~1016 mm (1” ~ 40”)		
Black mark	Min. 8 mm (W) x 2 mm (H)		
Gap height	Min. 2 mm		

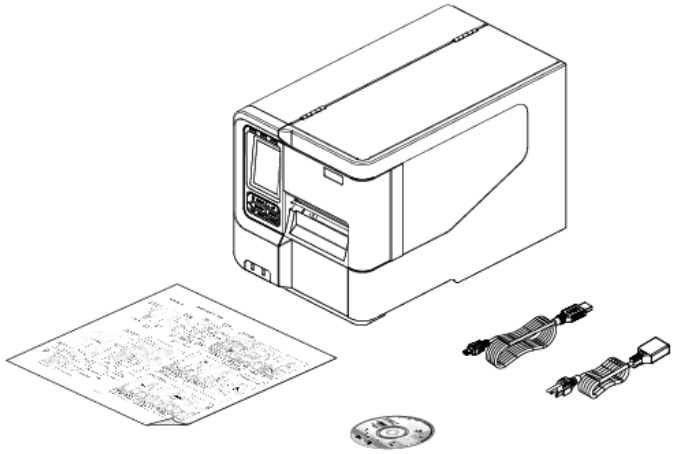
2. Operations Overview

2.1 Unpacking and Inspection

This printer has been specially packaged to withstand damage during shipping. Please carefully inspect the packaging and printer upon receiving the bar code printer. Please retain the packaging materials in case you need to reship the printer.

Unpacking the printer, the following items are included in the carton.

- One printer unit
- One Windows labeling software/Windows driver CD disk
- One quick installation guide
- One power cord
- One USB interface cable



If any parts are missing, please contact the Customer Service Department of your purchased reseller or distributor.

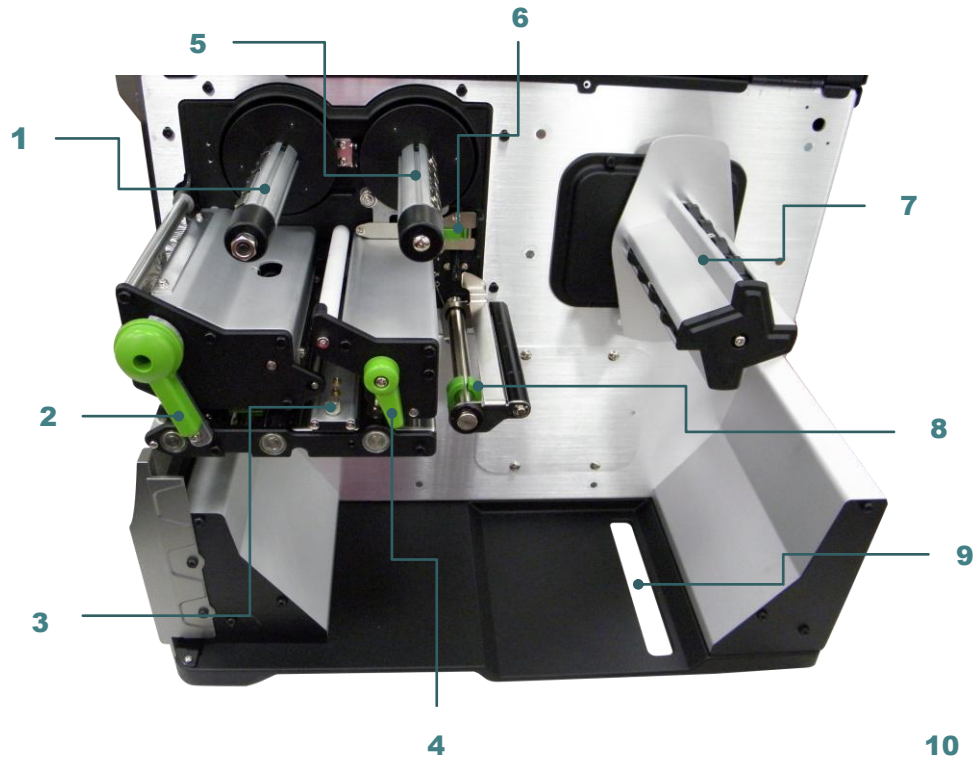
2.2 Printer Overview

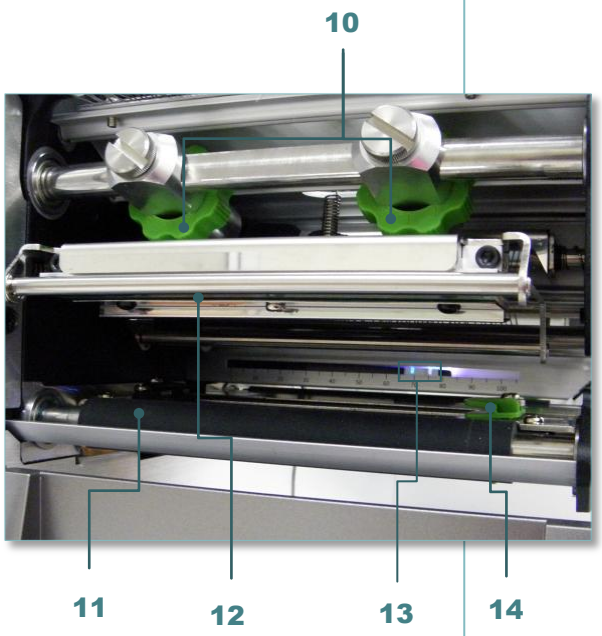
2.2.1 Front View

1. LED indicators
2. LCD display
3. Front panel buttons
4. USB host x 2
5. Media view window
6. Paper exit chute
7. Printer cover

Note:
*** For LCD control panel, please refer to subsection 2.3.2 for more details.**

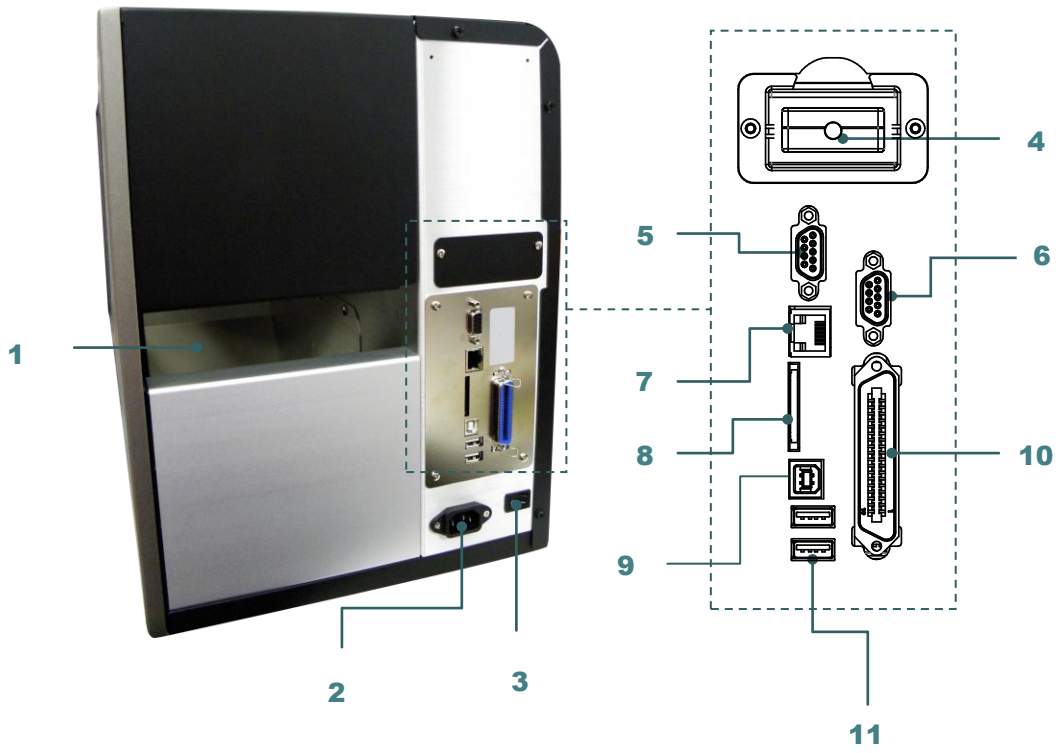
2.2.2 Interior view





1. Ribbon rewind spindle
2. Print head release lever
3. Media sensor position adjustment knob
4. Label guide bar release lever
5. Ribbon supply spindle
6. Ribbon tension adjustment knob
7. Label supply spindle
8. Rear label guide
9. External label entrance chute
10. Print head pressure adjustment knobs
11. Platen roller
12. Print head
13. Media sensor
14. Front label guide

2.2.3 Rear View



1. External label entrance chute
2. Power cord socket
3. Power switch
4. External BlueTooth or WiFi module (Option)
5. RS-232C interface
6. GPIO interface (Option)
7. Ethernet interface
8. * SD card socket
9. USB interface
10. Centronics interface
11. USB host x 2 (Option)

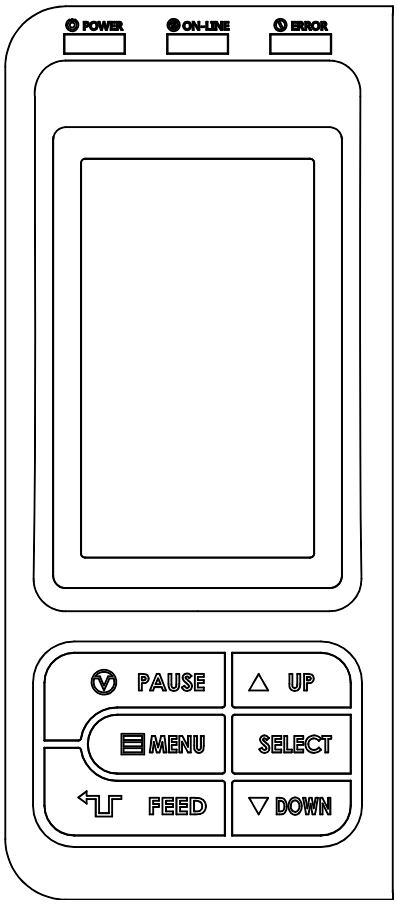
Note:

*** Recommended SD card specification.**

SD card spec	SD card capacity	Approved SD card manufacturer
V1.0, V1.1	128 MB	SanDisk, Transcend
V1.0, V1.1	256 MB	SanDisk, Transcend, Panasonic
V1.0, V1.1	512 MB	SanDisk, Transcend, Panasonic

V1.0, V1.1	1 GB	SanDisk, Transcend, Panasonic
V2.0 SDHC CLASS 4	4 GB	
V2.0 SDHC CLASS 6	4 GB	SanDisk, Transcend, Panasonic
CLASS 10	16 GB	Kingston
CLASS 10	32 GB	SanDisk, Transcend, Kingston
V1.0, V1.1	microSD 128 MB	Transcend, Panasonic
V1.0, V1.1	microSD 256 MB	Transcend, Panasonic
V1.0, V1.1	microSD 512 MB	Panasonic
V1.0, V1.1	microSD 1 GB	Transcend, Panasonic
V2.0 SDHC CLASS 4	microSD 4 GB	Transcend, Panasonic, Kingston
V2.0 SDHC CLASS 6	microSD 4 GB	Transcend
V2.0 SDHC CLASS 4	microSD 8 GB	Scandisk
CLASS 10	microSD 8 GB	Transcend, Kingston
V2.0 SDHC CLASS 4	microSD 16 GB	Scandisk
CLASS 10	microSD 16 GB	Kingston
CLASS 10 UHS-I	microSD 16 GB	Scandisk, Transcend
CLASS 10	microSD 32 GB	Kingston
CLASS 10 UHS-I	microSD 32 GB	Scandisk, Transcend
V1.0, V1.1	miniSD 128 MB	Transcend, Panasonic
V1.0, V1.1	miniSD 256 MB	Transcend, Panasonic
V1.0, V1.1	miniSD 512 MB	Transcend, Panasonic
V1.0, V1.1	miniSD 1 GB	Transcend, Panasonic
V2.0 SDHC CLASS 4	miniSD 4 GB	Transcend
V2.0 SDHC CLASS 6	miniSD 4 GB	
- The DOS FAT file system is supported for the SD card. - Folders/files stored in the SD card should be in the 8.3 filename format. - The miniSD/microSD card to SD card slot adapter is required.		

2.3 Operator Control



2.3.1 LED Indication and Keys

LED	Status	Indication
POWER	Off	Printer power off
	On	Printer power on
ON-LINE	On	Printer is ready
	Blinking	Printer is paused
		Printer is downloading data
ERROR	Off	Printer is ready
	On	Carriage open or cutter error
	Blinking	No paper, paper jam or no ribbon
Keys	**Function**	
PAUSE	Pause/Resume the printing process	

MENU	1. Enter the menu 2. Exit from a menu or cancel a setting and return to the previous menu
FEED	Advances one label
UP	Scroll up the menu list
SELECT	Enter/Select cursor located option
DOWN	Scroll down the menu list

3. Setup

3.1 Setting up the printer

1. Place the printer on a flat, secure surface.

2. Make sure the power switch is off.

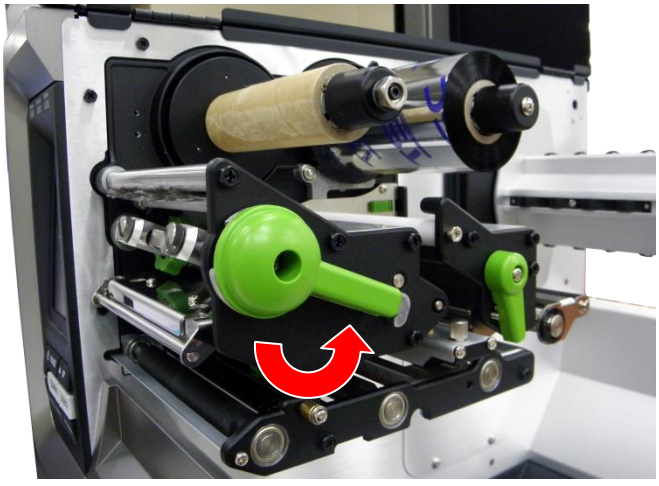
3. Connect the printer to the computer with the provided USB cable.

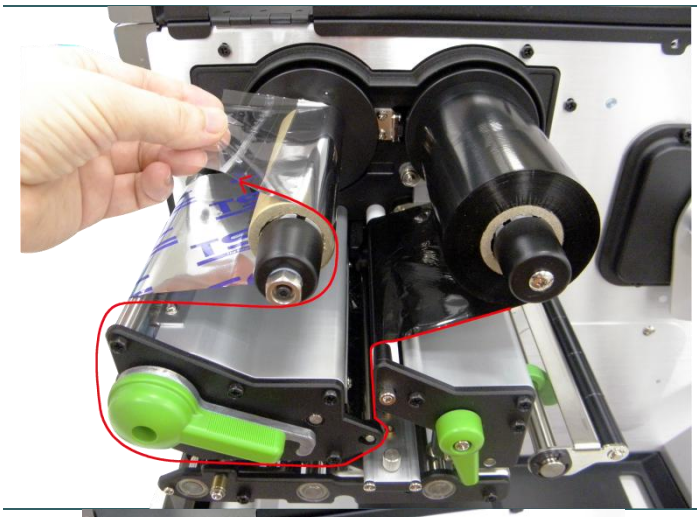
4. Plug the power cord into the AC power cord socket at the rear of the printer, and then plug the power cord into a properly grounded power outlet.

Note: Please switch OFF printer power switch prior to plug in the power cord to printer power jack.

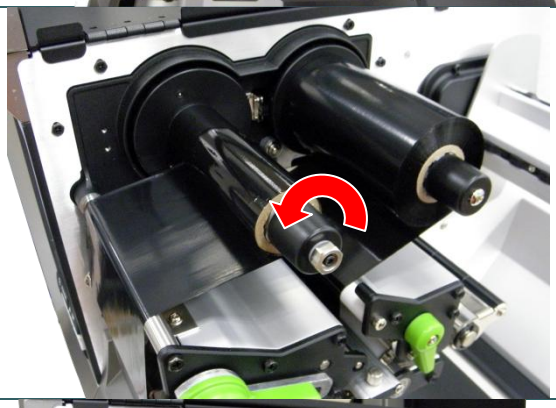
3.2 Loading the Ribbon

Please make sure to stop printer running by pressing pause button or turning off power switch before loading the ribbon for safety issue. (Turning off power switch if pause button fail its function)

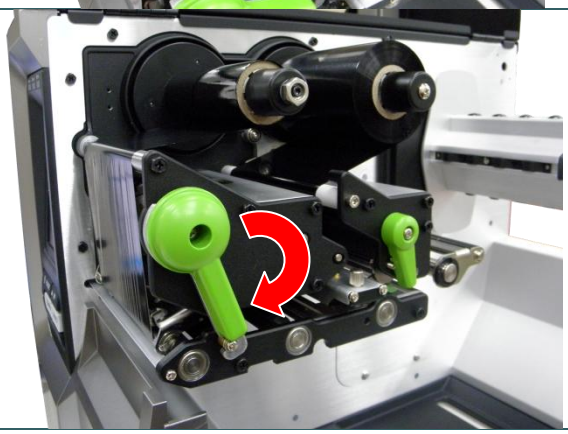
	1. Open the printer right side cover.
	2. Install the ribbon and paper core onto ribbon supply spindle and ribbon rewind spindle.
	3. Push print head release lever to open print head mechanism.



4. Thread ribbon above the ribbon guide bar and through ribbon sensor slot. (Please refer to “Loading path for ribbon” as following fig.)



5. Wind the ribbon rewind spindle counterclockwise roughly 3~5 circles until ribbon is smooth, properly stretched and wrinkle-free.

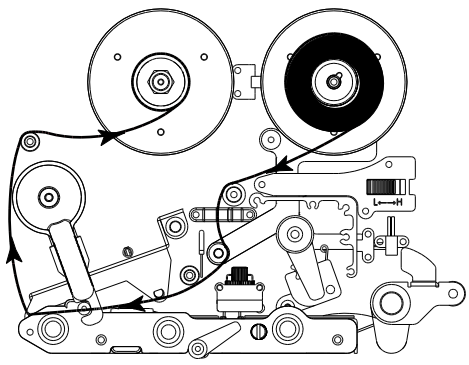


6. Close the print head mechanism by pushing the print head release lever.

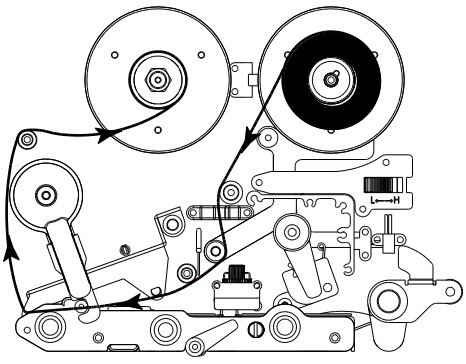
Note:
*** Please refer to video on TSC YouTube or driver CD.**

Loading path for ribbon

*** Ink coated outside wound**



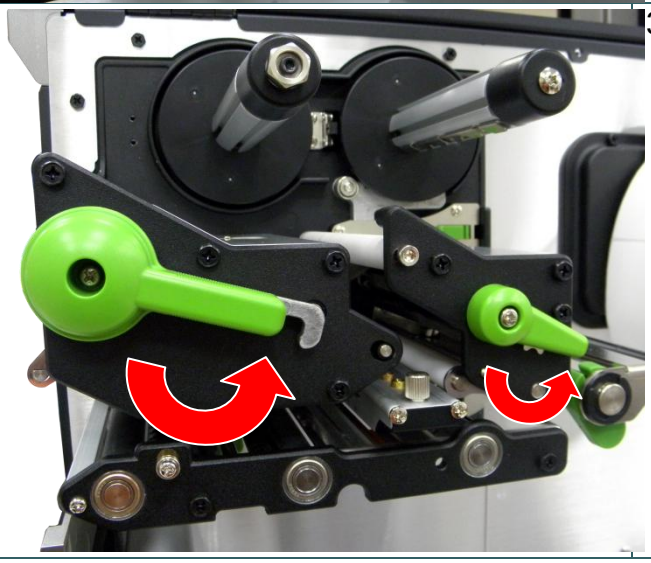
*** Ink coated inside wound**

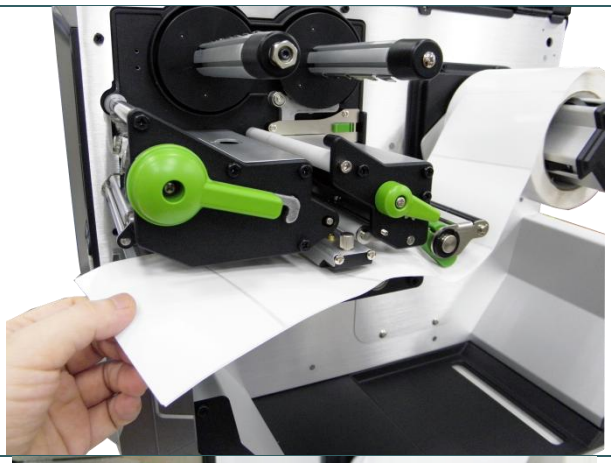


3.3 Loading the Media

Please make sure to stop printer running by pressing pause button or turning off power switch before loading the media for safety issue. (Turning off power switch if pause button fail its function)

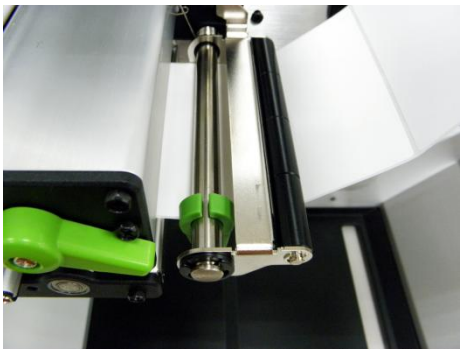
3.3.1 Loading the Media

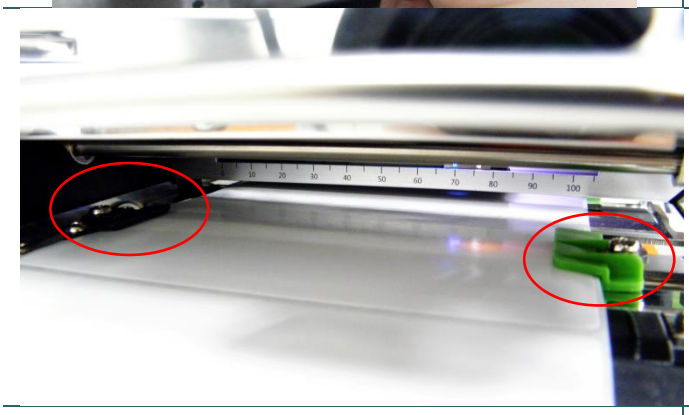
	1. Open the printer right side cover.
	2. Place the roll of media on the label supply spindle.
	3. Push open the print head release lever and label guide bar release lever for loading media.



4. Pull the leading edge of the label forward through the media guide bar pass media sensor, and place the leading edge onto the platen roller.

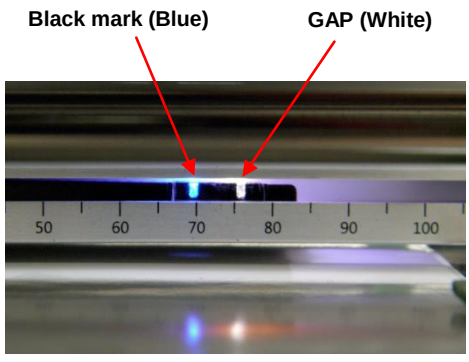
5. Adjust the rear label guide (green) to fit the label width.

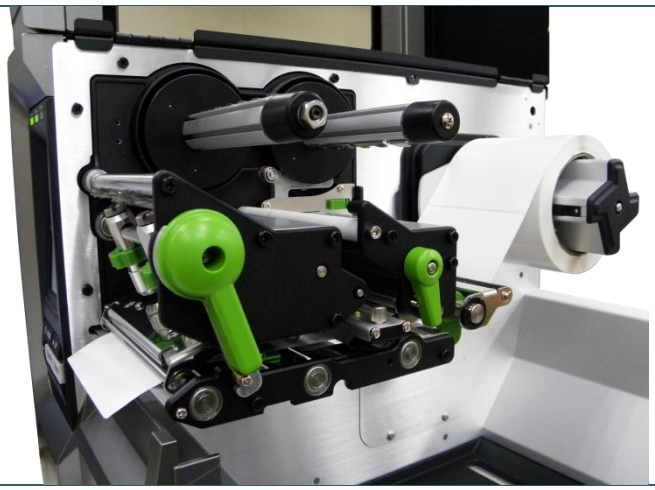




6. Adjust the front label guide (green) to fit the label width.

7. Move the media sensor by adjusting the media sensor position adjustment knob, make sure the gap or black mark sensor is at the location where media gap/black mark will pass through for sensing.

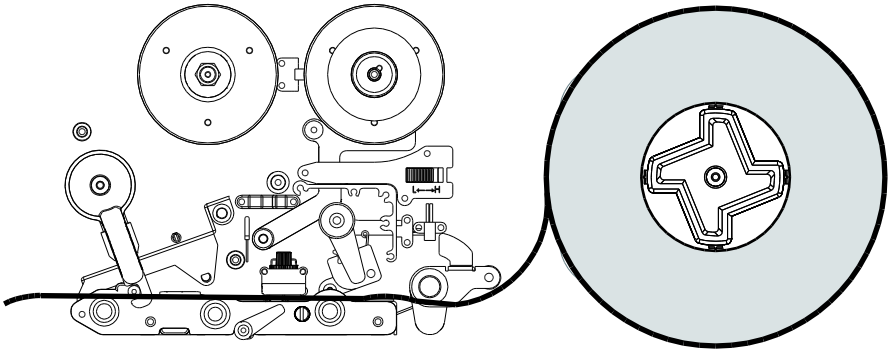




8. Close print head release lever and label guide bar release lever.
9. Set media sensor type and calibrate the selected sensor.

Note:
*** Please calibrate the gap/black mark sensor when changing media.**
*** Please refer to video on TSC YouTube or driver CD.**

Loading path for media

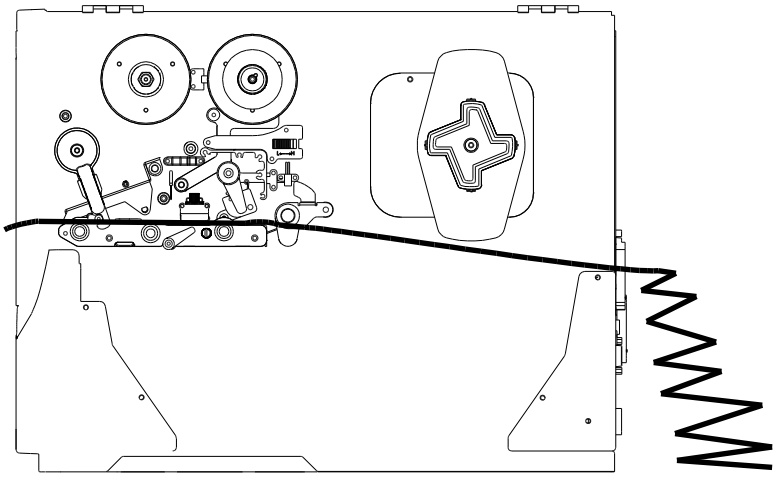


3.3.2 Loading the Fan-fold/External Media

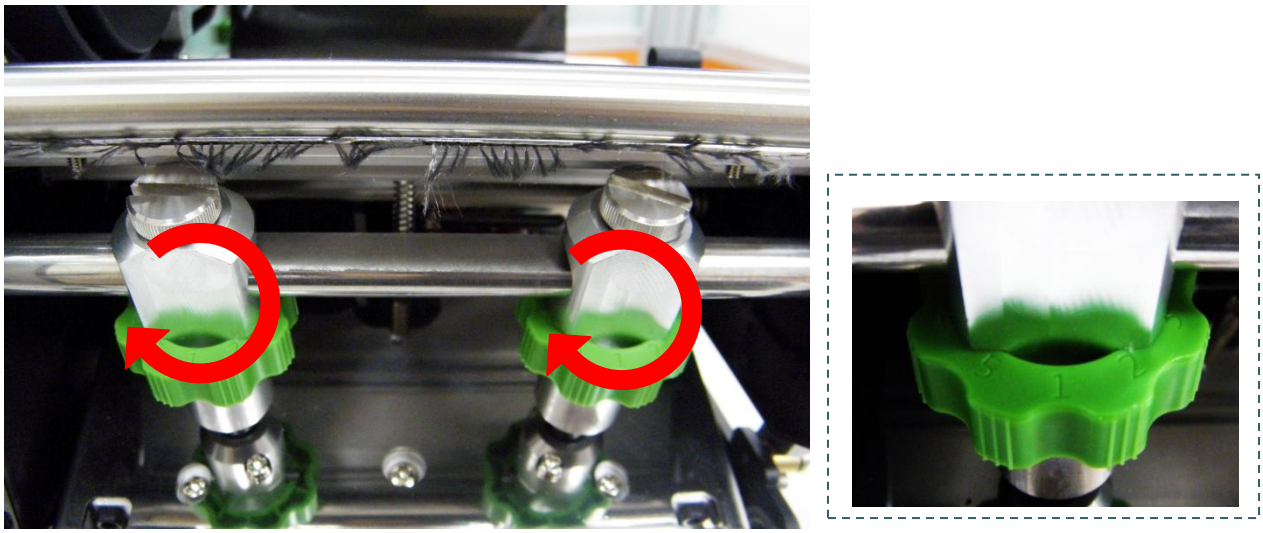
1. Open the printer right side cover.
2. Insert the fan-fold media through the bottom or rear external label entrance chute.
3. Please refer to section 3.3.1 step 3~9 for loading media.

Note:
Please calibrate the gap/black mark sensor when changing media.

Loading path for fan-fold labels



4. Moveable Print Head Pressure Adjustment Knob

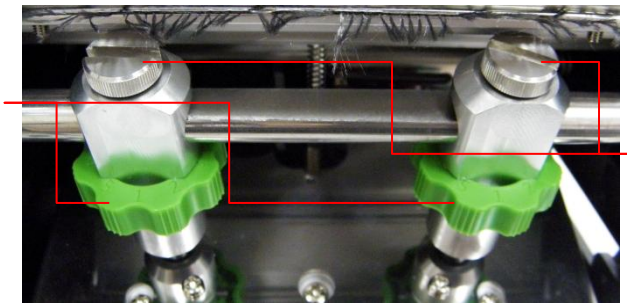


The moveable print head pressure adjustment knob has 5 levels of adjustment. Because the printer's paper alignment is to the left side of mechanism, different media widths require different pressure to print correctly. Therefore it may require to adjust the pressure knob to get your best print quality. For example, if the label width is 4", adjust both print head pressure adjustment knobs to the same level. If the label is less than 2" wide, increase the left side print head pressure by rotating the adjustment knob clockwise and decrease the right side pressure by rotating the adjustment knob counter-clockwise to level 1.

4.1 Mechanism Fine Adjustment to Avoid Ribbon Wrinkles

This printer has been fully tested before delivery. There should be no ribbon wrinkle presented on the media for general-purpose printing application. Ribbon wrinkle is related to the media thickness, print head pressure balance, ribbon film characteristics, print darkness setting…etc. In case the ribbon wrinkle happens, please follow the instructions below to adjust the printer parts.

<table>
<tr><td>Adjustable Printer Parts</td><td colspan="2">The print head pressure adjustment knob has 5 levels of settings. Clockwise direction adjustment is to increase the print head pressure. Counter Clockwise adjustment can decrease the print head pressure.

Print head pressure adjustment knobs
 
Fixing screws</td></tr>
<tr><td>Symptom</td><td>1. Wrinkle happens from label lower left to upper right direction (“ ´ ”)</td><td>2. Wrinkle happens from label lower right to upper left direction (“ ` ”)</td></tr>
<tr><td rowspan="2">Wrinkle Example</td><td>
</td><td>
</td></tr>
<tr><td>If the wrinkle on the label starts from the lower left side to upper right side, please do following adjustment.

1. Decrease the right side print head pressure adjustment knob setting 1 level per each adjustment then print the label again to check if wrinkle is gone.

2. If the right side print head adjustment knob setting has been set to index 1 (the lowest pressure index), please increase the left side print head pressure.</td><td>If the wrinkle on the label starts from the lower right side to upper left side, please do following adjustment.

1. Decrease the left side print head pressure adjustment knob setting 1 level per each adjustment then print the label again to check if wrinkle is gone.

2. If the left side print head adjustment knob level has been set to index 1 (the lowest index), please increase the right side print head pressure.</td></tr>
</table>

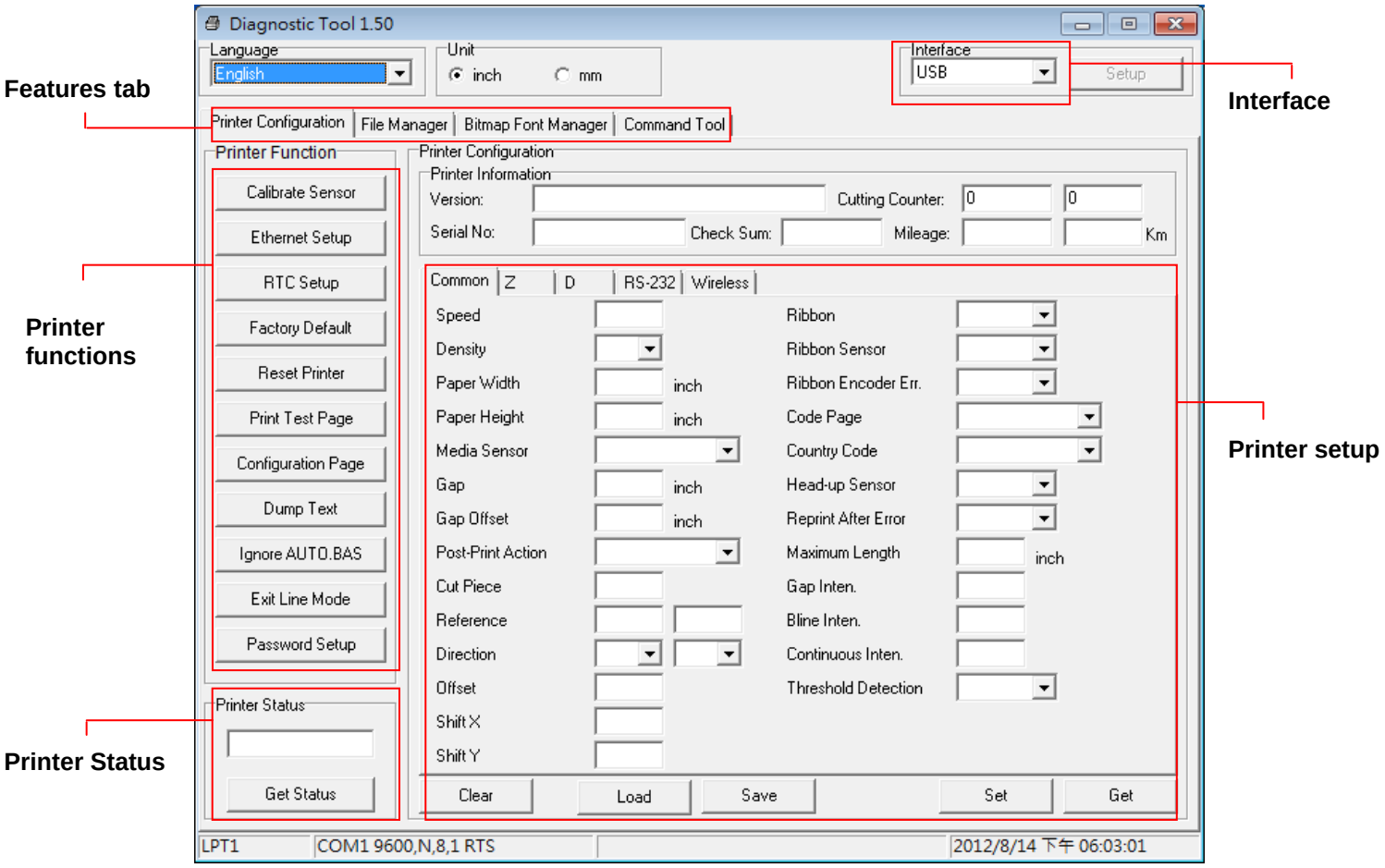
5. Diagnostic Tool

TSC's Diagnostic Utility is an integrated tool incorporating features that enable you to explore a printer's settings/status; change a printer's settings; download graphics, fonts and firmware; create a printer bitmap font; and send additional commands to a printer. With the aid of this powerful tool, you can review printer status and setting in an instant, which makes it much easier to troubleshoot problems and other issues.

5.1 Start the Diagnostic Tool

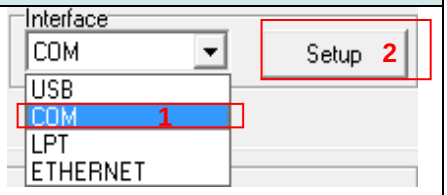
1. Double click on the Diagnostic tool icon DiagTool.exe to start the software.

2. There are four features (Printer Configuration, File Manager, Bitmap Font Manager, Command Tool) included in the Diagnostic utility.



5.2 Printer Function

1. Connect the printer and computer with a cable.
2. Select the PC interface connected with bar code printer.

USB cable	Other cable
 The default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.	

3. Click the “Printer Function” button to setup.
4. The detail functions in the Printer Function Group are listed as below.

Function	Description
Calibrate Sensor	Calibrate the sensor specified in the Printer Setup group media sensor field
Ethernet Setup	Setup the IP address, subnet mask, gateway for the on board Ethernet
RTC Setup	Synchronize printer Real Time Clock with PC
Factory Default	Initialize the printer and restore the settings to factory default.
Reset Printer	Reboot printer
Print Test Page	Print a test page
Configuration Page	Print printer configuration
Dump Text	To activate the printer dump mode.
Ignore AUTO.BAS	Ignore the downloaded AUTO.BAS program
Exit Line Mode	Exit line mode.
Password Setup	Set the password to protect the settings

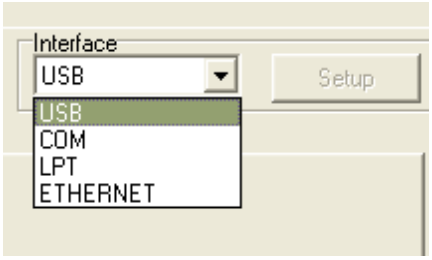
For more information about Diagnostic Tool, please refer to the diagnostic utility quick start guide in the CD disk \ Utilities directory.

5.3 Setting Ethernet by Diagnostic Tool

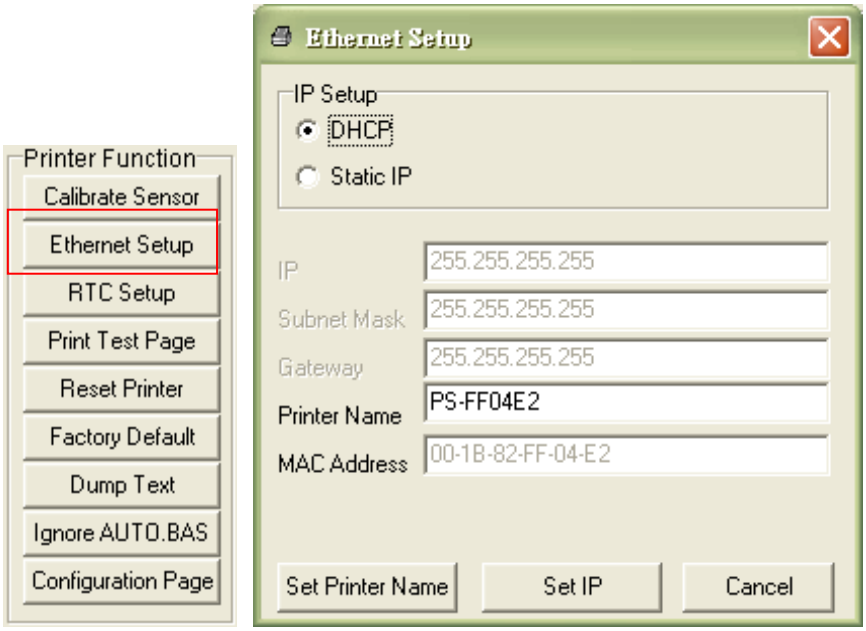
The Diagnostic Utility is enclosed in the CD disk \Utilities directory. Users can use Diagnostic Tool to setup the Ethernet by RS-232, USB and Ethernet interfaces. The following contents will instruct users how to configure the Ethernet by these three interfaces.

5.3.1 Using USB interface to setup Ethernet interface

1. Connect the printer and computer with USB cable.
2. Turn on the printer power switch.
3. Start the Diagnostic Utility by double clicking on the DiagTool.exe icon.
4. The Diagnostic Utility default interface setting is USB interface. If USB interface is connected with printer, no other settings need to be changed in the interface field.



5. Click on the “Ethernet Setup” button from “Printer Function” group in Printer Configuration tab to setup the IP address, subnet mask and gateway for the on board Ethernet.



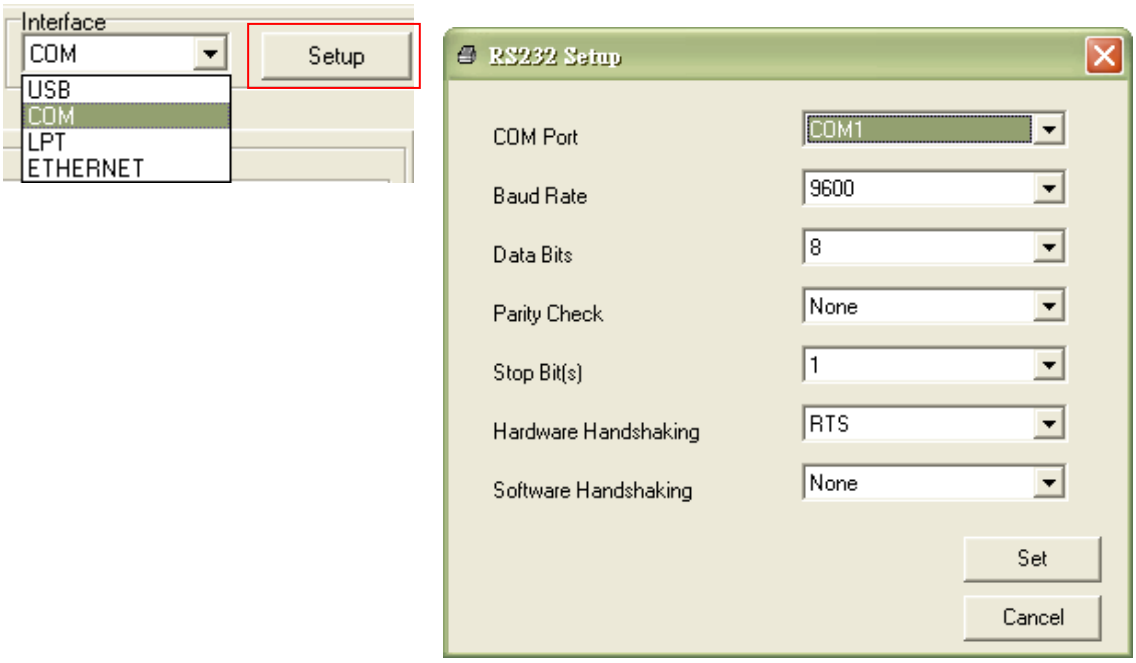
5.3.2 Using RS-232 interface to setup Ethernet interface

1. Connect the computer and the printer with a RS-232 cable.

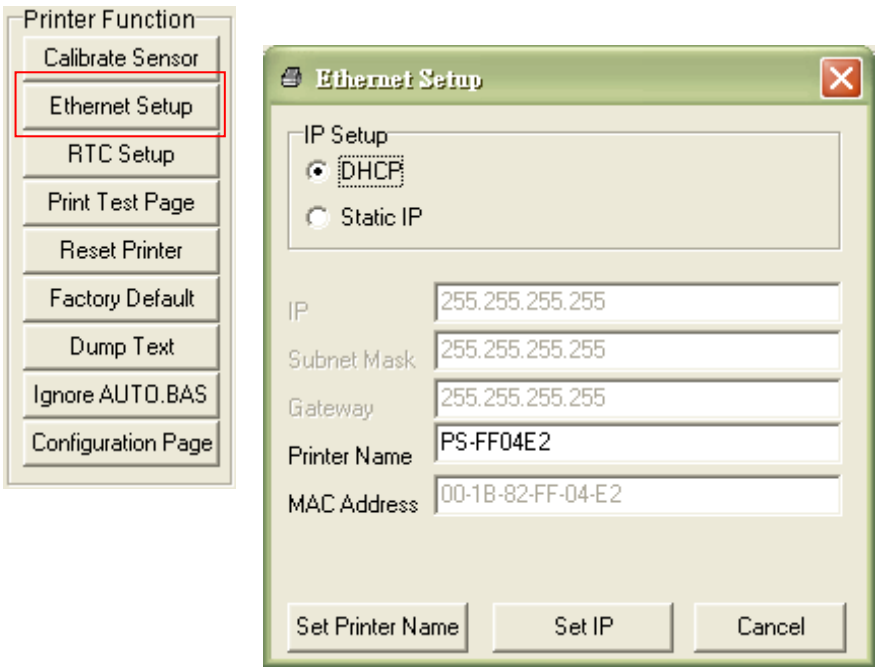
2. Turn on the printer power.

3. Start the Diagnostic Utility by double clicks on the icon.

4. Select “COM” as interface then click on the “Setup” button to setup the serial port baud rate, parity check, data bits, stop bit and flow control parameters.



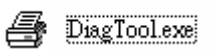
5. Click on the “Ethernet Setup” button from printer function of Printer Configuration tab to setup the IP address, subnet mask and the gateway for the on board Ethernet.



5.3.3 Using Ethernet interface to setup Ethernet interface

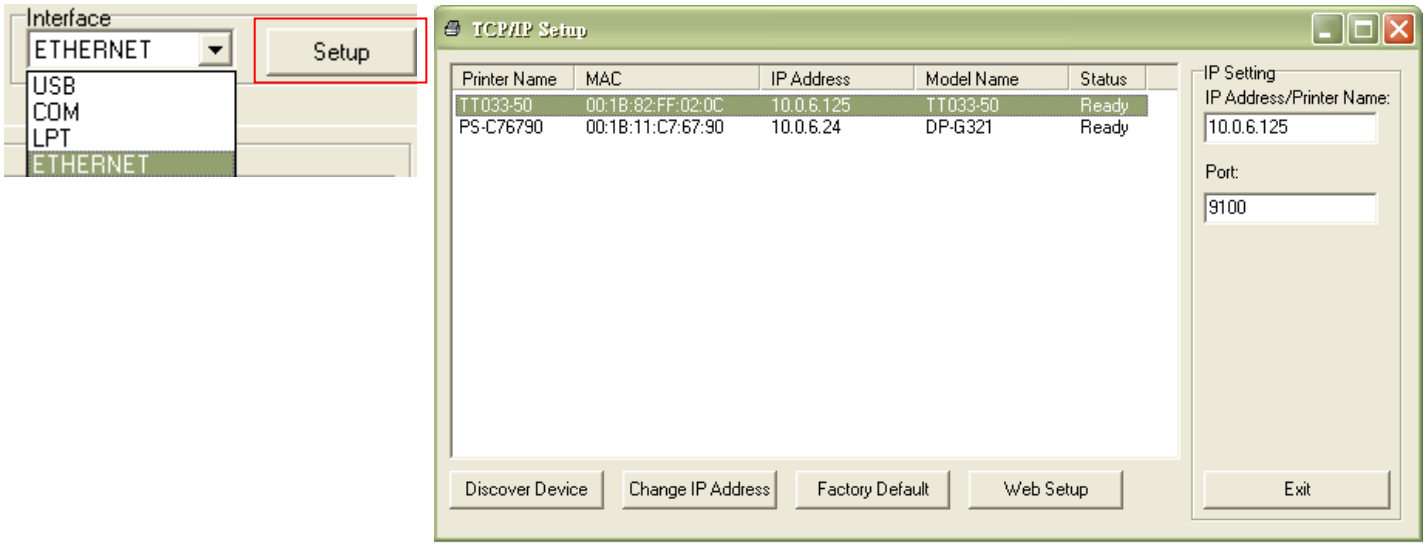
1. Connect the computer and the printer to the LAN.

2. Turn on the printer power.

3. Start the Diagnostic Utility by double clicks on the 

icon.

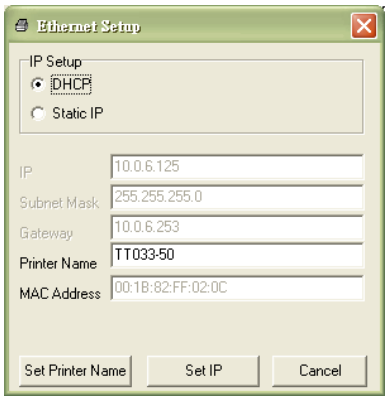
4. Select “Ethernet” as the interface then click on the “Setup” button to setup the IP address, subnet mask and gateway for the on board Ethernet.



5. Click the “Discover Device” button to explore the printers that exist on the network.

6. Select the printer in the left side of listed printers, the correspondent IP address will be shown in the right side “IP address/Printer Name” field.

7. Click “Change IP Address” to configure the IP address obtained by DHCP or static.



The default IP address is obtained by DHCP. To change the setting to static IP address, click “Static IP” radio button then enter the IP address, subnet mask and gateway. Click “Set IP” to take effect the settings.

Users can also change the “Printer Name” by another model name in this fields then click “Set Printer Name” to take effect this change.

Note: After clicking the “Set Printer Name” or “Set IP” button, printer will reset to take effect the settings.

8. Click “Exit” button to exit the Ethernet interface setup and go back to Diagnostic Tool main screen.

Factory Default button

This function will reset the IP, subnet mask, gateway parameters obtained by DHCP and reset the printer name.

Web setup button

Except to use the Diagnostic Utility to setup the printer, you can also explore and configure the printer settings and status or update the firmware with the IE or Firefox web browser. This feature provides a user friendly setup interface and the capability to manage the printer remotely over a network.

6. LCD Menu Function

6.1 Enter the Menu Menu

*** By Keys:**

Press the “MENU” button and press the “SELECT” button to enter the main menu.

*** By touch display:**

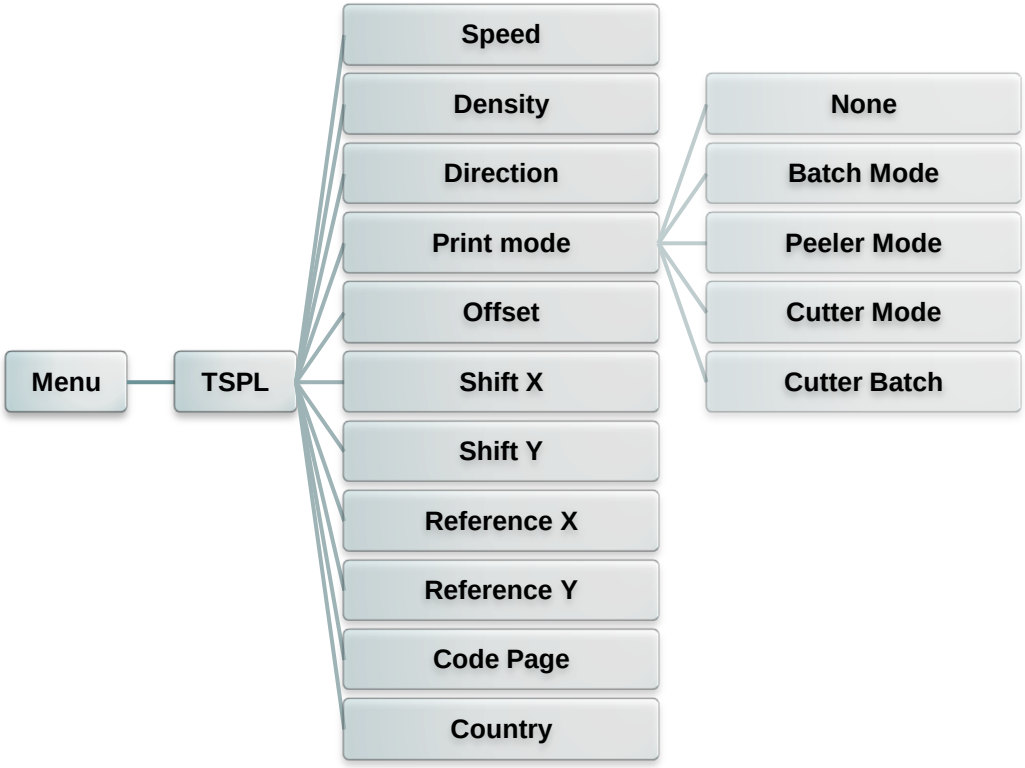
Tap the “Menu” icon on LCD to enter the main menu.

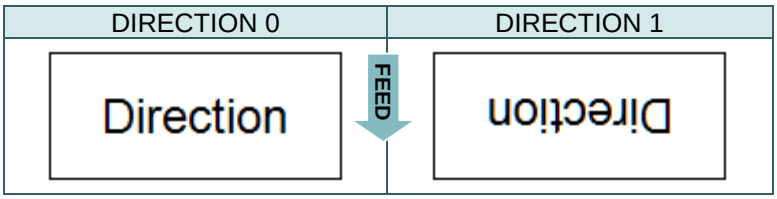
6.2 Main Menu Overview

There are 8 categories for the main menu. You can easy to set the settings of printer without connecting the computer. Please refer to following sections for more details.

6.3 TSPL

This “TSPL” category can set up the printer settings for TSPL2.



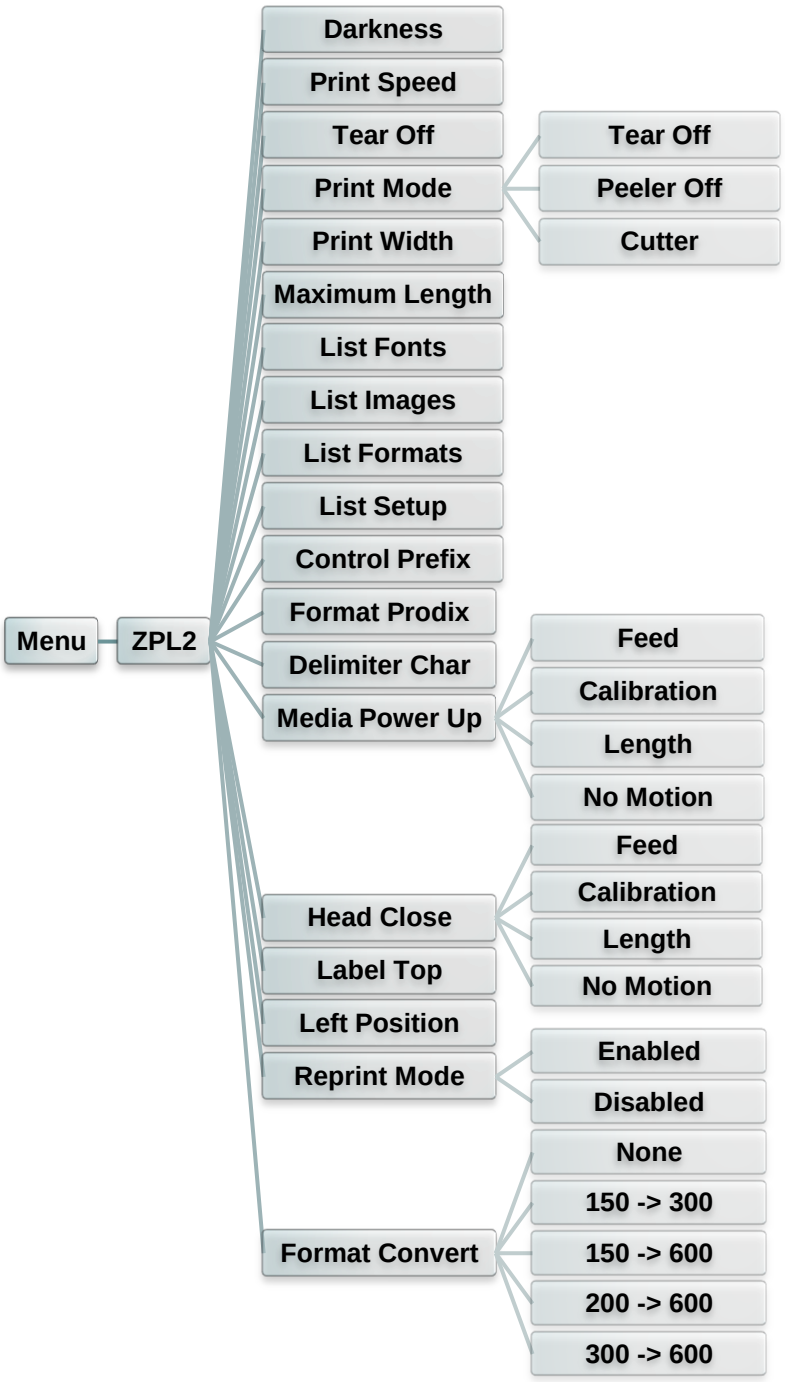
Item	Description	Default
Speed	Use this item to setup print speed. The each increase or decrease is 1 ips. Available setting is from 4 to 12.	**6**
Density	Use this option to setup printing darkness. The available setting is from 0 to 15, and the step is 1. You may need to adjust your density based on selected media.	**8**
Direction	The direction setting value is either 1 or 0. Use this item to setup the printout direction. 	**0**
Print mode	This item is used to set the print mode. There are 5 modes as below, Printer Mode / Description None: Next label top of form is aligned to the print head burn line location. (Tear Off Mode) Batch Mode: Once image is printed completely, label gap/black mark will be fed to the tear plate location for tear away. Peeler Mode: Enable the label peel off mode. Cutter Mode: Enable the label cutter mode.	**Batch Mode**

	Cutter Batch | Cut the label once at the end of the printing job.	
Offset	This item is used to fine tune media stop location. Available setting value is from “+” to “-” or “0” to “9”.	**+000**
Shift X	This item is used to fine tune print position. Available setting value is from “+” to “-” or “0” to “9”.	**+000**
Shift Y		**+000**
Reference X	This item is used to set the origin of printer coordinate system horizontally and vertically. Available setting value is from “0” to “9”.	**000**
Reference Y		**000**
Code page	Use this item to set the code page of international character set.	**850**
Country	Use this option to set the country code.	**001**

Note: If printing from enclosed software/driver, the software/driver will send out the commands, which will overwrite the settings set from the panel.

6.4 ZPL2

This “ZPL2” category can set up the printer settings for ZPL2.



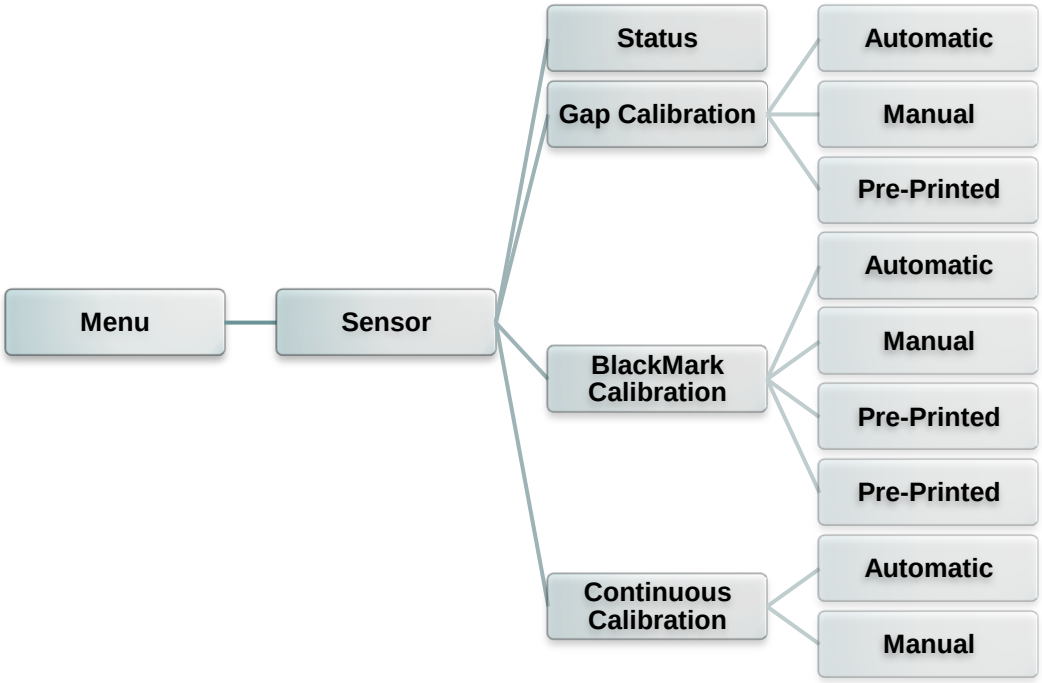
Item	Description	Default
Density	Use this item to setup printing darkness. The available setting is from 0 to 30, and the step is 1. You may need to adjust your density based on selected media.	**16**
Print Speed	Use this item to setup print speed. The each increase or decrease is 1 ips. Available setting is from 1 to 6.	**2**

<table>
<tr><td>Tear Off</td><td>This item is used to fine tune media stop location. Available setting value is from “+” to “-” or “0” to “9”.</td><td>+000</td></tr>
<tr><td>Print mode</td><td>This item is used to set the print mode. There are 3 modes as below,
<table><tr><th>Printer Mode</th><th>Description</th></tr><tr><td>Tear Off</td><td>Next label top of form is aligned to the print head burn line location.</td></tr><tr><td>Peeler Off</td><td>Enable the label peel off mode.</td></tr><tr><td>Cutter</td><td>Enable the label cutter mode</td></tr></table></td><td>Tear Off</td></tr>
<tr><td>Print Width</td><td>This item is used to set print width. The available value is from “0” to “9”.</td><td>812</td></tr>
<tr><td>List Fonts</td><td>This feature is used to print current printer available fonts list to the label. The fonts stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Images</td><td>This feature is used to print current printer available images list to the label. The images stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Formats</td><td>This feature is used to print current printer available formats list to the label. The formats stored in the printer’s DRAM, Flash or optional memory card.</td><td>N/A</td></tr>
<tr><td>List Setup</td><td>This feature is used to print current printer configuration to the label.</td><td>N/A</td></tr>
<tr><td>Control Prefix</td><td>This feature is used to set control prefix character.</td><td>N/A</td></tr>
<tr><td>Format Prefix</td><td>This feature is used to set format prefix character.</td><td>N/A</td></tr>
<tr><td>Delimiter Char</td><td>This feature is used to set delimiter character.</td><td>N/A</td></tr>
<tr><td>Media Power Up</td><td>This option is used to set the action of the media when you turn on the printer.
<table><tr><th>Selections</th><th>Description</th></tr><tr><td>Feed</td><td>Printer will advance one label</td></tr><tr><td>Calibration</td><td>Printer will calibration the sensor levels, determine length and feed label</td></tr><tr><td>Length</td><td>Printer determine length and feed label</td></tr><tr><td>No Motion</td><td>Printer will not move media</td></tr></table></td><td>No Motion</td></tr>
<tr><td>Head Close</td><td>This option is used to set the action of the media when you close the print head.
<table><tr><th>Selections</th><th>Description</th></tr><tr><td>Feed</td><td>Printer will advance one label</td></tr><tr><td>Calibration</td><td>Printer will calibration the sensor levels, determine length and feed label</td></tr><tr><td>Length</td><td>Printer determine length and feed label</td></tr><tr><td>No Motion</td><td>Printer will not move media</td></tr></table></td><td>No Motion</td></tr>
<tr><td>Label Top</td><td>This option is used to adjust print position vertically on the label. The range is -120 to +120 dots.</td><td>0</td></tr>
<tr><td>Left Position</td><td>This option is used to adjust print position horizontally on the label. The range is -9999 to +9999 dots.</td><td>+0000</td></tr>
<tr><td>Reprint Mode</td><td></td><td>Disabled</td></tr>
<tr><td>Format Convert</td><td></td><td>None</td></tr>
</table>

Note: If printing from enclosed software/driver, the software/driver will send out the commands, which will overwrite the settings set from the panel.

6.5 Sensor

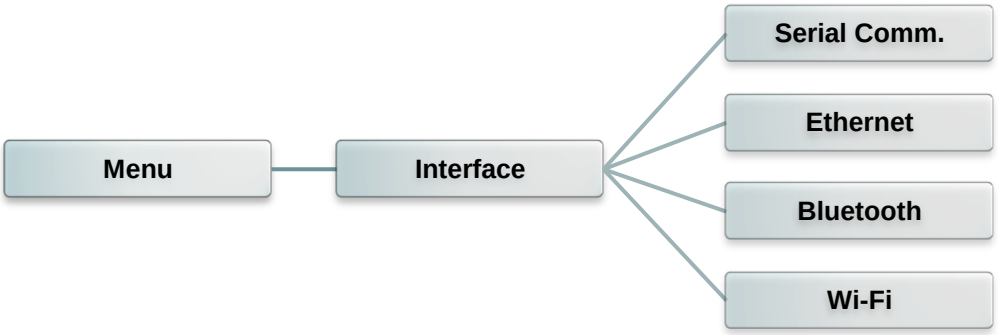
This option is used to calibrate the selected sensor. We recommend calibrate the sensor before printing when changing the media.



Item	Description	Default
Status	This function is available to check the printer's sensor status.	**N/A**
Gap Calibration	This item is used to set the gap media sensor type and calibrate the sensor.	**N/A**
BlackMark Calibration	This item is used to set the black mark media sensor type and calibrate the sensor.	**N/A**
Continuous Calibration	This item is used to set the continuous media sensor type and calibrate the sensor.	**N/A**
Automatic	Printer will feed 2 to 3 gap labels to calibrate the sensor sensitivity automatically.	**N/A**
Manual	In case "Automatic" cannot apply to the media, please use "Manual" function to set the paper length and gap/bline size then scan the backing/mark to calibrate the sensor sensitivity.	**N/A**
Pre-Printed	This function can set the paper length and gap/bline size before auto-calibrate the sensor sensitivity.	**N/A**

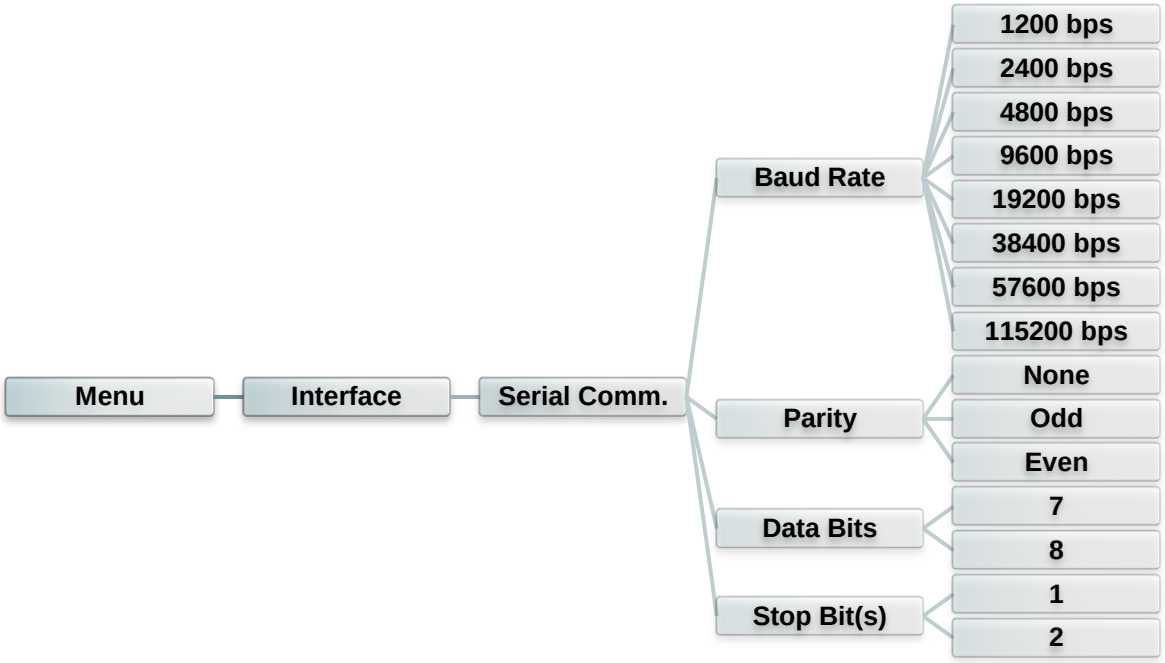
6.6 Interface

This option is used to set the printer interface settings.



6.6.1 Serial Comm.

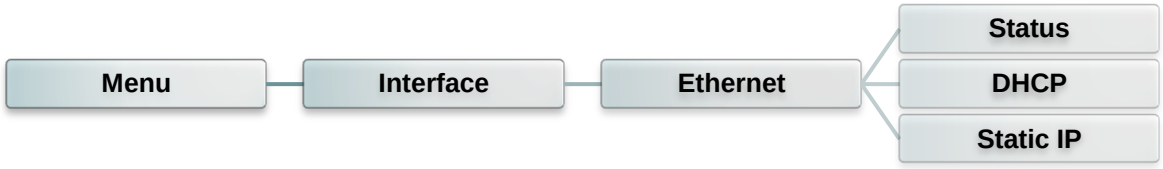
This option is used to set the printer RS-232 settings.



Item	Description	Default
Baud Rate	This item is used to set the RS-232 baud rate.	**9600**
Parity	This item is used to set the RS-232 parity.	**None**
Data Bits	This item is used to set the RS-232 Data Bits.	**8**
Stop Bit(s)	This item is used to set the RS-232 Stop Bits.	**1**

6.6.2 Ethernet

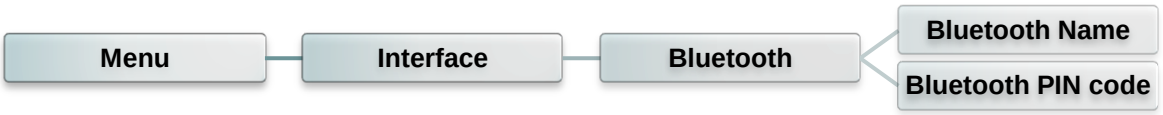
Use this menu to configure internal Ethernet configuration check the printer's Ethernet module status, and reset the Ethernet module.



Item	Description	Default
Status	Use this menu to check the Ethernet IP address and MAC setting status.	**N/A**
DHCP	This item is used to ON or OFF the DHCP (Dynamic Host Configuration Protocol) network protocol.	**N/A**
Static IP	Use this menu to set the printer's IP address, subnet mask and gateway.	**ON**

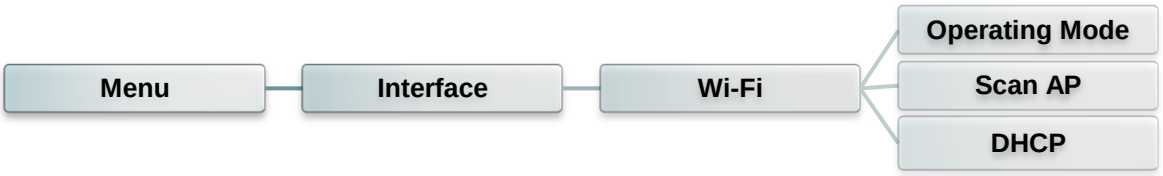
6.6.3 Bluetooth

This option is used to set the printer blustooth settings.



Item	Description	Default
Bluetooth Name	This item is used to set the local name for Bluetooth.	**BT-SPP**
Bluetooth PIN Code	This item is used to set the local PIN code for Bluetooth.	**0000**

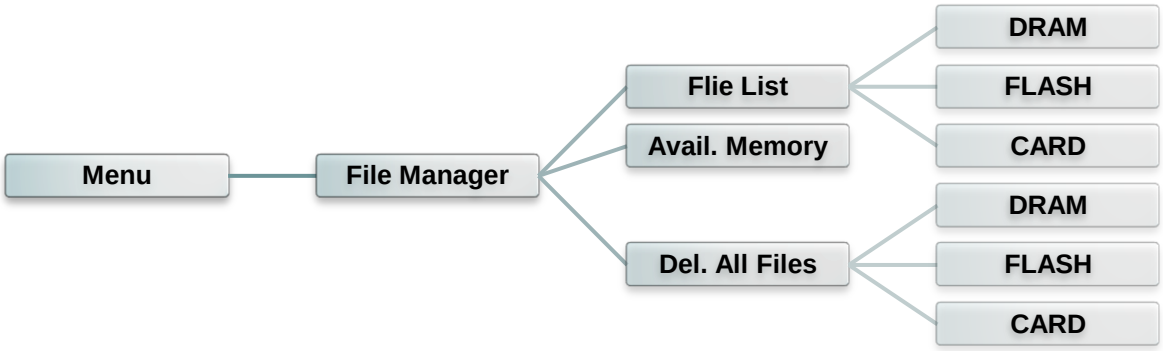
6.6.4 Wi-Fi



Item	Description	Default
Operating	This item is used to set the operating mode of wireless local area networks to connect devices to the networks. **Note:** **Infrastructure mode requires the use of an access point for this communication to take place.** **Ad hoc mode involves connecting a computer directly to another computer.**	**Infrastructure**
Scan AP	This item is used to scan the access point devise	**N/A**
DHCP	This item is used to ON or OFF the DHCP (Dynamic Host Configuration Protocol) network protocol.	**ON**

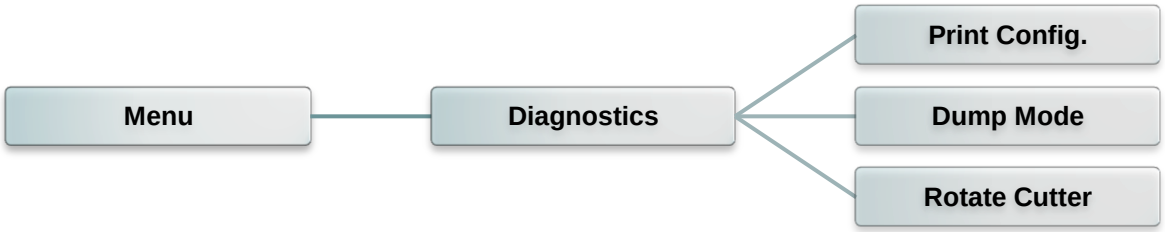
6.7 File Manager

This feature is used to check the printer available memory and file list.



Item	Description
File List	Use this menu to show, delete and run (.BAS) the files saved in the printer DRAM/Flash/Card memory.
Avail. Memory	Use this menu to show available memory space.
Del. All Files	Use this menu to delete all files.

6.8 Diagnostics



6.8.1 Print Config.

This feature is used to print current printer configuration to the label. On the configuration printout, there is a print head test pattern, which is useful for checking if there is any dot damage on the print head heater element.

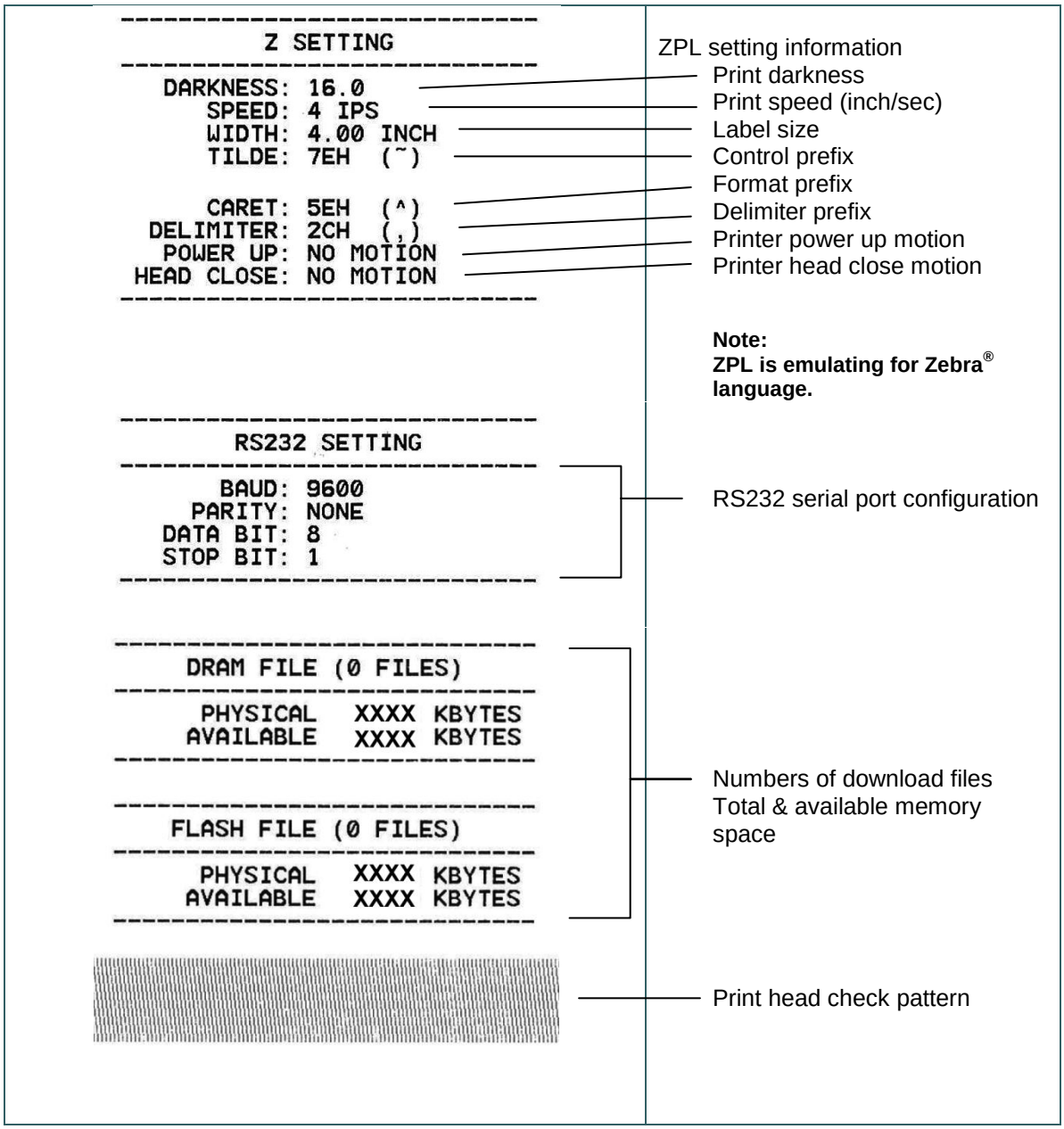
Self-test printout

```
------------------------------
     SYSTEM INFORMATION
------------------------------
      MODEL: XXXXXX
   FIRMWARE: X.XX
   CHECKSUM: XXXXXXXX
        S/N: XXXXXXXXXXX
        TCF: NO
       DATE: 1970/01/01
       TIME: 00:04:18
 NON-RESET: 110      m (TPH)
      RESET: 110      m (TPH)
 NON-RESET: 0          (CUT)
      RESET: 0          (CUT)
------------------------------


------------------------------
     PRINTING SETTING
------------------------------
      SPEED: 5 IPS
    DENSITY: 8.0
      WIDTH: 4.00 INCH
     HEIGHT: 4.00 INCH
        GAP: 0.00 INCH
  INTENSION: 5
   CODEPAGE: 850
    COUNTRY: 001
------------------------------
```

Model name
F/W version
Firmware checksum
Printer S/N
TSC configuration file
System date
System time
Printed mileage (meter)
Cutting counter

Print speed (inch/sec)
Print darkness
Label size (inch)
Gap distance (inch)
Gap/black mark sensor intension
Code page
Country code



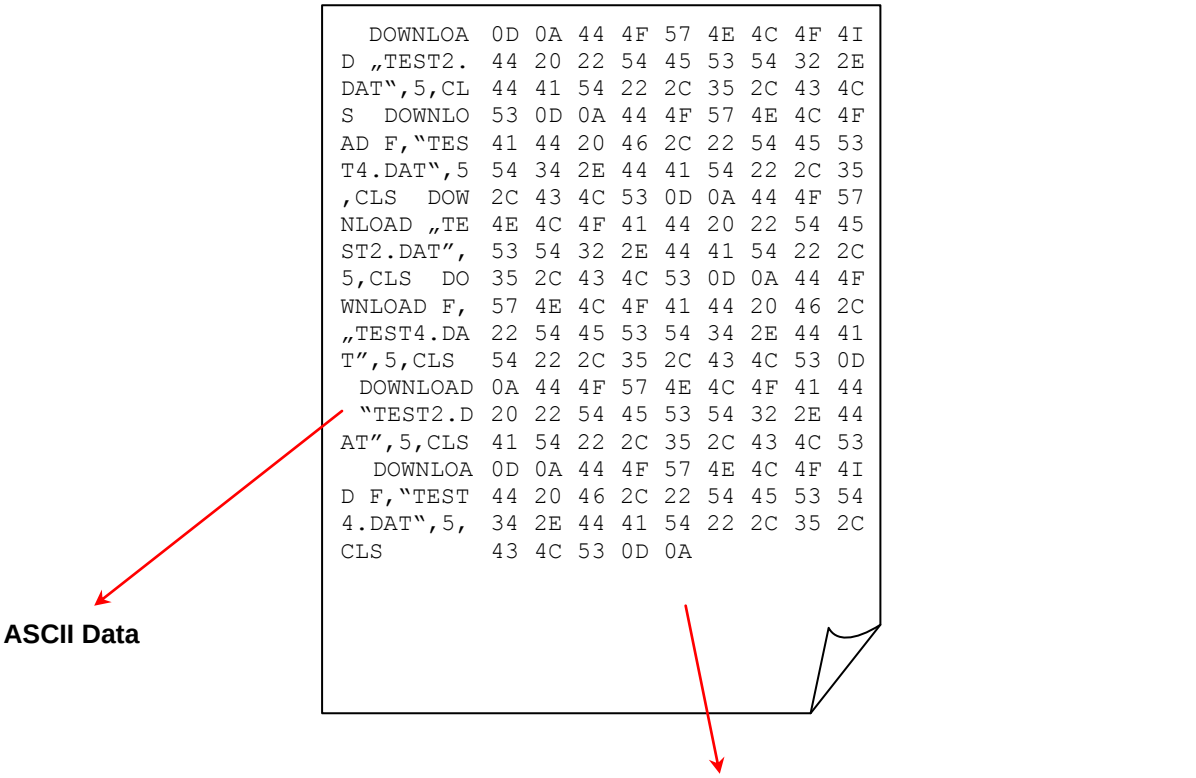
Note:

Checking dot damage requires 4" wide paper width.

6.8.2 Dump Mode

Captures the data from the communications port and prints out the data received by printer. In the dump mode, all characters will be printed in 2 columns. The left side characters are received from your system and right side data are the corresponding hexadecimal value of the characters. It allows users or engineers to verify and debug the program.

Menu → **Diagnostics** → **Dump Mode**



Note:
Dump mode requires 4” wide paper width.

6.8.3 Rotate Cutter

In case paper is jammed in the cutter, this feature can rotate the cutter blade forward or reverse direction, which is helpful to remove the jammed paper easily from the cutter.

6.9 Advance Set

This feature is used to set the printer LCD settings.

Item	Description
Brightness	This item is used to setup the brightness for display.
Date & Time	This item is used to setup the date and time on display.
Language	This item is used to setup the language on display.

6.10 Service

This feature is used to restore printer settings to defaults and checking information for printer.

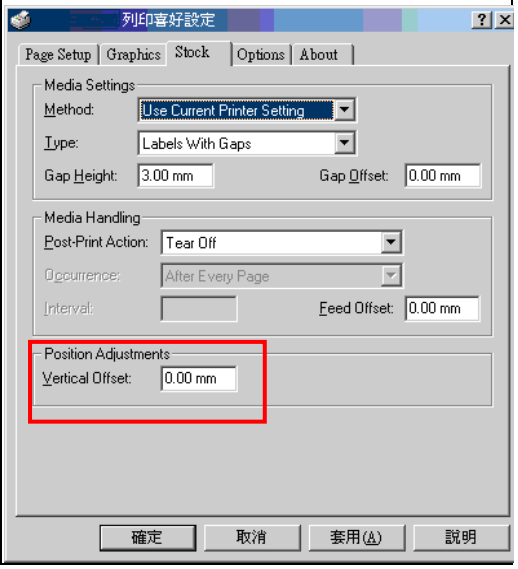
Item	Description
Initialization	This feature is used to restore printer settings to defaults.
Mileage Info.	This feature is used to check the printed mileage
Contact us	This feature is used to check the contact information for tech support service
Serial Info.	This feature is used to check the printer serial number

7. Troubleshooting

The following guide lists the most common problems that may be encountered when operating this bar code printer. If the printer still does not function after all suggested solutions have been invoked, please contact the Customer Service Department of your purchased reseller or distributor for assistance.

Problem	Possible Cause	Recovery Procedure
Power indicator does not illuminate	* The power cord is not properly connected.	* Plug the power cord in printer and outlet. * Switch the printer on.
Carriage Open	* The printer carriages are open.	* Please close the print carriages.
Not Printing	* Check if interface cable is well connected to the interface connector. * Check if wireless or Bluetooth device is well connected between host and printer. * The port specified in the Windows driver is not correct.	* Re-connect cable to interface or chang a new cable. * Please reset the wireless device setting. * Select the correct printer port in the driver. * Clean the printhead. * Printhead's harness connector is not well connected with printheat. Turn off the printer and plug the connector again. * Check your program if there is a command PRINT at the end of the file and there must have CRLF at the end of each command line.
No print on the label	* Label or ribbon is loaded not correctly. * Use wrong type paper or ribbon	* Follow the instructions in loading the media and ribbon. * Ribbon and media are not compatible. * Verify the ribbon-inked side. * The print density setting is incorrect.
No Ribbon	* Running out of ribbon. * The ribbon is installed incorrectly.	* Supply a new ribbon roll. * Please refer to the steps in user's manual to reinstall the ribbon.
No Paper	* Running out of label. * The label is installed incorrectly. * Gap/black mark sensor is not calibrated.	* Supply a new label roll. * Please refer to the steps in user's manual to reinstall the label roll. * Calibrate the gap/black mark sensor.
Paper Jam	* Gap/black mark sensor is not set properly. * Make sure label size is set properly. * Labels may be stuck inside the printer mechanism.	* Calibrate the media sensor. * Set media size correctly. * Remove the stuck label inside the printer mechanism.
Take Label	* Peel function is enabled.	* If the peeler module is installed, please remove the label. * If there is no peeler module in front of the printer, please switch off the printer and install it. * Check if the connector is plugging correctly.

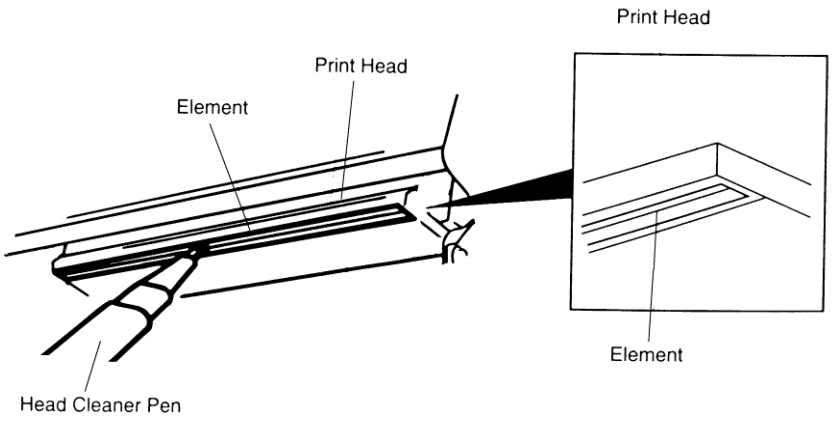
Can't downloading the file to memory (FLASH / DRAM/CARD)	* The space of memory is full.	* Delete unused files in the memory.
SD card is unable to use	* SD card is damaged. * SD card doesn't insert correctly. * Use the non-approved SD card manufacturer.	* Use the supported capacity SD card. * Insert the SD card again. * The supported SD card spec and the approved SD card manufacturers, please refer to section 2.2.3.
Poor Print Quality	* Ribbon and media is loaded incorrectly * Dust or adhesive accumulation on the print head. * Print density is not set properly. * Printhead element is damaged. * Ribbon and media are incompatible. * The printhead pressure is not set properly.	* Reload the supply. * Clean the print head. * Clean the platen roller. * Adjust the print density and print speed. * Run printer self-test and check the print head test pattern if there is dot missing in the pattern. * Change proper ribbon or proper label media. * Adjust the printhead pressure adjustment knob. * The release lever does not latch the printhead properly.
Missing printing on the left or right side of label	* Wrong label size setup.	* Set the correct label size.
Gray line on the blank label	* The print head is dirty. * The platen roller is dirty.	* Clean the print head. * Clean the platen roller.
Irregular printing	* The printer is in Hex Dump mode. * The RS-232 setting is incorrect.	* Turn off and on the printer to skip the dump mode. * Re-set the Rs-232 setting.
Label feeding is not stable (skew) when printing	* The media guide does not touch the edge of the media.	* If the label is moving to the right side, please move the label guide to left. * If the label is moving to the left side, please move the label guide to right.
Skip labels when printing	* Label size is not specified properly. * Sensor sensitivity is not set properly. * The media sensor is covered with dust.	* Check if label size is setup correctly. * Calibrate the sensor by Auto Gap or Manual Gap options. * Clear the GAP/Black mark sensor by blower.
Wrinkle Problem	* Printhead pressure is incorrect. * Ribbon installation is incorrect. * Media installation is incorrect. * Print density is incorrect. * Media feeding is incorrect.	* Please refer to the next chapter. * Please set the suitable density to have good print quality. * Make sure the label guide touch the edge of the media guide.
RTC time is incorrect when reboot the printer	* The battery has run down.	* Check if there is a battery on the main board.
The left side printout position is incorrect	* Wrong label size setup. * The parameter Shift X in LCD menu is incorrect.	* Set the correct label size. * Press [MENU] → [SELECT] x 3 → [DOWN] x 5 → [SELECT] to fine tune the parameter of Shift X.

The printing position of small label is incorrect	* Media sensor sensitivity is not set properly. * Label size is incorrect. * The parameter Shift Y in the LCD menu is incorrect. * The vertical offset setting in the driver is incorrect.	* Calibrate the sensor sensitivity again. * Set the correct label size and gap size. * Press [MENU] → [SELECT] x3→[DOWN]x6 → [SELECT] to fine tune the parameter of Shift Y. * If using the software BarTender, please set the vertical offset in the driver. 

8. Maintenance

This session presents the clean tools and methods to maintain your printer.

1. Please use one of following material to clean the printer.
   - Cotton swab
   - Lint-free cloth
   - Vacuum / Blower brush
   - 100% Ethanol or Isopropyl Alcohol
2. The cleaning process is described as following,

<table>
<tr><th>Printer Part</th><th>Method</th><th>Interval</th></tr>
<tr><td rowspan="2">Print Head</td><td>1. Always turn off the printer before cleaning the print head.
2. Allow the print head to cool for a minimum of one minute.
3. Use a cotton swab and 100% Ethanol or Isopropyl Alcohol to clean the print head surface.</td><td>Clean the print head when changing a new label roll.</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><td>Platen Roller</td><td>1. Turn the power off.
2. Rotate the platen roller and wipe it thoroughly with water.</td><td>Clean the platen roller when changing a new label roll</td></tr>
<tr><td>Peel Bar</td><td>Use the lint-free cloth with 100% ethanol to wipe it.</td><td>As needed</td></tr>
<tr><td>Sensor</td><td>Compressed air or vacuum</td><td>Monthly</td></tr>
<tr><td>Exterior</td><td>Wipe it with water-dampened cloth</td><td>As needed</td></tr>
<tr><td>Interior</td><td>Brush or vacuum</td><td>As needed</td></tr>
</table>

Note:

- Do not touch printer head by hand. If you touch it careless, please use ethanol to clean it.
- Please use 100% Ethenol or Isopropyl Alcohol. DO NOT use medical alcohol, which may damage the printer head.
- Regularly clean the print head and supply sensors once change a new media to keep printer performance and extend printer life.

Revise History

Date	Content	Editor
2014/4/24	Modify agency compliance and approvals	Camille
2014/6/18	Modify switching power supply spec (section 1.3)	Camille

TSC Auto ID Technology Co., Ltd.

Corporate Headquarters
9F., No.95, Minquan Rd., Xindian Dist.,
New Taipei City 23141, Taiwan (R.O.C.)
TEL: +886-2-2218-6789
FAX: +886-2-2218-5678
Web site: www.tscprinters.com
E-mail: apac_sales@tscprinters.com
tech_support@tscprinters.com

Li Ze Plant
No.35, Sec. 2, Ligong 1st Rd., Wujie Township,
Yilan County 26841, Taiwan (R.O.C.)
TEL: +886-3-990-6677
FAX: +886-3-990-5577